

Tucson Airport Remediation Project (TARP) (Part of the TIAA CERCLA Site)

Boundaries:

The northern operable unit of the Tucson International Airport Area (TIAA) main plume consists of a groundwater pump and treat system known as TARP. This portion of the main plume extends from Los Reales Road northward just past Irvington Road. It is bounded on the west by Interstate 19 and the Santa Cruz River, and on the east by South 6th Avenue and Nogales Highway (Route 89).

Site History:

- Historic industrial and defense related activities resulted in the release of hazardous wastes into the groundwater (mainly during the 1950's, '60s, and '70s) leading to extensive contamination of the regional aquifer. The source of contamination for the TARP plume was AFP-44 and the Airport Property project areas of TIAA.
- The TIAA site was placed on the National Priorities List (NPL) in 1983.
- In 1985, a remedial investigation (RI), which characterized the extent and concentration of contaminants in the TARP groundwater plume, was completed by the Arizona Department of Health Services (ADHS). In 1988, a feasibility study (FS) was completed by the Arizona Department of Water Resources (ADWR).
- In 1988, EPA issued a site-wide record of decision (ROD) for volatile organic compound (VOC) contaminated groundwater.
- In 1994, the TARP groundwater remediation system including extraction wells, treatment plant, and associated piping was completed.
- The TARP system is now in the operation and maintenance phase.

Site Status:

- A large-scale groundwater pump and treat system consisting of a southern well field of five extraction wells, a northern well field of four extraction wells, an air stripping water treatment plant and associated piping from the extraction wells to the treatment plant provides hydraulic control and remediation of the northern operable unit of the TIAA regional aquifer.
- Together the nine wells pump an average of about 4,700 gallons per minute (gpm).
- Since the system was started in September 1994, approximately 21.3 billion gallons of groundwater have been treated, and 2,300 pounds of trichloroethene (TCE) have been removed from the regional aquifer.

- Clean water from the TARP treatment plant is delivered to the Tucson water distribution system where it accounts for about nine percent of the city drinking water supply.
- During the spring and summer of 2002, 1,4-dioxane up to approximately 12 parts per billion (ppb) was discovered in the TARP project area.
- The TARP treatment system was designed to remove VOCs, not 1,4-dioxane. Thus, low levels (less than two ppb) of 1,4-dioxane are being delivered to municipal water consumers who receive their water from the TARP plant.
- The 1,4-dioxane is thought to have originated from AFP-44.
- Tucson Water is conducting a groundwater modeling effort to examine how they can reduce pumping from the TARP extraction wells and still maintain full plume capture. Additional groundwater monitoring wells may be needed to confirm continued plume capture.

Site Hydrogeology:

- The TARP project area is located in the northwestern portion of the TIAA site. In all but the extreme northern portion of the project area (beneath Irvington Road), the regional aquifer is composed of two hydrostratigraphic units: the upper zone of the regional aquifer and the lower zone of the regional aquifer. The regional aquifer in the far northern portion of the project area is composed of only one hydrostratigraphic unit called the undivided regional aquifer.
- The upper zone of the regional aquifer is composed mainly of gravelly sand with some clayey sand and sandy clay, and it extends to a depth of about 200 feet below ground surface (bgs). The lower zone of the regional aquifer is composed mainly of relatively finer materials including clayey sand with lenses of gravelly sand and sandy clay, and it extends from about 300 feet bgs to an unknown depth.
- Separating the upper and lower zones of the regional aquifer is a thick clayey sequence termed the middle aquitard. This unit generally prevents contamination in the upper zone from reaching the lower zone.
- The undivided regional aquifer (in the northern part of the TARP project area) is composed mainly of coarse-grained materials.
- Depth to groundwater in the TARP project area varies from 80 to 240 feet bgs and generally gets deeper in a northward direction. The general groundwater flow direction is toward the north-northwest.
- More detailed descriptions of the hydrogeology of the TARP project area can be found in reports and studies available at the TIAA Information Repository.

Contaminants:

The current contaminants of concern in groundwater include VOCs, mainly TCE. TCE concentrations range from five to about 140 ppb. In addition, 1,4-dioxane was recently discovered with concentrations of up to 12 ppb. Contaminants of concern at the site may change as new data become available.

Public Health Impact:

All municipal wells in the area that were contaminated with TCE have been shut down. Most of the domestic wells have either been shut down or converted to irrigation wells. However, a few residents with domestic wells with low levels of TCE and 1,4-dioxane have chosen to continue using their wells.

Community Involvement Activities:

The unified community advisory board (UCAB) conducts public meetings to discuss the site the third Wednesday of every other month (starting in January).

Information Repository:

Interested parties can review site information at the information repository at the TCE Superfund Information Library located at 101 W. Irvington Road, within the El Pueblo Branch Library in Tucson, (520) 791-4733. Site information is also available at both ADEQ's Southern Regional Office located at 400 W. Congress, Suite 433 in Tucson, and the main office located at 1110 West Washington Street, Phoenix. Files are available for review Monday through Friday from 8 a.m. to 5 p.m. Please call (520) 770-3361 to arrange a file review appointment at the Southern Regional Office or the ADEQ Records Center (602) 771-4378 or (800) 234-5677 (Arizona toll-free).

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*In Arizona, but outside the Tucson area, call toll-free at (888) 271-9302.

**Call EPA's toll-free message line at (800) 231-3075.